



**United States
Department of
Agriculture**

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Programs

Processed
Products
Branch

United States Standards for Grades of Canned Beets

Effective August 3, 1998

This is the eighth issue of the United States Standards for Grades of Canned Beets published in the **FEDERAL REGISTER** of July 2, 1998 (63 FR 36201) to become effective August 3, 1998. This issue supersedes the seventh issue, which has been in effect since June 24, 1985.

Voluntary U.S. grade standards are issued under the authority of the Agricultural Marketing Act of 1946, which provides for the development of official U.S. grades to designate different levels of quality. These grade standards are available for use by producers, suppliers, buyers, and consumers. As in the case of other standards for grades of processed fruits and vegetables, these standards are designed to facilitate orderly marketing by providing a convenient basis for buying and selling, for establishing quality control programs, and for determining loan values.

The standards also serve as a basis for the inspection and grading of commodities by the Federal inspection service, the only activity authorized to approve the designation of U.S. grades as referenced in the standards, as provided under the Agricultural Marketing Act of 1946. This service, available as on-line (in-plant) or lot inspection and grading of all processed fruit and vegetable products, is offered to interested parties, upon application, on a fee-for-service basis. The verification of some specific recommendations, requirements, or tolerances contained in the standards can be accomplished only by the use of on-line inspection procedures. In all instances, a grade can be assigned based on final product factors or characteristics.

In addition to the U.S. grade standards, grading manuals or instructions for inspection of several processed fruits and vegetables are available upon request for a nominal fee. These manuals or instructions contain detailed interpretations of the grade standards and provide step-by-step procedures for grading the product.

Grade standards are issued by the Department after careful consideration of all data and views submitted, and the Department welcomes suggestions which might aid in improving the standards in future revisions. Comments may be submitted to, and copies of standards and grading manuals obtained from:

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UNITED STATES STANDARDS FOR GRADES OF
CANNED BEETS

EFFECTIVE AUGUST 3, 1998

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Authority: Agricultural Marketing Act of 1946, Secs. 203, 205, 60 Stat. 1087, as amended, 1090, as amended; (7 U.S.C. 1621-1627).

Note: Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act, or with applicable State laws and regulations.

§52.521 Identity.

Canned beets means canned beets as defined in the definitions and standards of identity for canned vegetables (21 CFR 155.200), issued pursuant to the Federal Food, Drug, and Cosmetic Act.

§52.522 Styles of canned beets.

- (a) **Whole or whole beets** means canned beets consisting of whole beets that retain the approximate original conformation of the whole beet.
- (b) **Slices or sliced beets** means canned beets consisting of slices of beets, irrespective of whether such slices are **corrugated, fluted, wavy, or scalloped**.
- (c) **Quarters or quartered beets** means canned beets consisting of quarters of beets.
- (d) **Dice or diced beets** means canned beets consisting of diced beets.
- (e) **Julienne, French style, or shoestring** means canned beets consisting of strips of beets.
- (f) **Cut** means canned beets consisting of units, irrespective of whether such units are **segmented or wedgedshaped**, which are not uniform in size or shape or which do not conform to any of the foregoing styles.
- (g) **Unit** means as individual beet or portion of a beet in canned beets.

§52.523 Grades of canned beets.

- (a) **U.S. Grade A or U.S. Fancy** is the quality of canned beets that possess similar varietal characteristics; possess a normal flavor and odor; possess a good color; are practically free from defects; are tender; and possess such uniformity of size and shape as to score not less than 85 points when scored in accordance with the scoring system outlined in this subpart.
- (b) **U.S. Grade C or U.S. Standard** is the quality of canned beets that possess similar varietal characteristics; possess a normal flavor and odor; possess a fairly good color; are fairly free from defects; are fairly tender; and possess such uniformity of size and shape as to score not less than 70 points when scored in accordance with the scoring system outlined in this subpart.

- (c) **Substandard** is the quality of canned beets that fail to meet the requirements of U.S. Grade C or U.S. Standard.

§52.524 Recommended fill of container.

The recommended fill of container is not incorporated in the grades of the finished product since fill of container, as such, is not a factor of quality for the purpose of these grades. It is recommended that each container be filled as full as practicable with beets without impairment of quality and that the product and packing medium occupy not less than 90 percent of the total capacity of the container.

§52.525 Recommended minimum drained weight.

The minimum drained weight recommendations in Table No. 1 of this section are not incorporated in the grades of the finished product since drained weight, as such, is not a factor of quality for the purpose of these grades. The drained weight of canned beets is determined by emptying the contents of the container upon a U.S. Standard No. 8 sieve of proper diameter so as to distribute the product evenly, inclining the sieve slightly to facilitate drainage and allowing to drain for two minutes. The drained weight is the weight of the sieve and the beets less the weight of the dry sieve. A sieve 8 inches in diameter is used for the No. 2-1/2 size can (401 x 411) and smaller sizes; and a sieve 12 inches in diameter is used for containers larger than the No. 2-1/2 size can.

Table I. Recommended Minimum Drained Weights for Canned Beets, English System (Avoirdupois)

Container size or designation	Container Dimensions ¹	Water Capacity @ 68°F, Avoir. ozs. ²	Style ³						
			Whole		Sliced		Diced	Quartered & cut	Julienne
			Size No. 1-3 inclusive	Size No. 4-6 inclusive	Small	Medium and large			
8-ounce tall	211x304	8.65	5.5	5.0	5.5	5.0	5.5	5.5	5.3
8-ounce jar	-----	8.53	5.5	5.0	5.5	5.0	5.5	5.5	5.3
No.1 picnic	211x400	10.90	6.8	6.5	6.8	6.5	7.0	7.0	6.8
No. 300	300x407	15.20	9.0	8.6	9.3	8.8	9.5	9.5	8.1
No. 303	303x406	16.85	10.0	9.5	10.3	9.8	10.5	10.5	9.0
No. 303 jar	-----	17.68	10.0	9.5	10.3	9.8	10.5	10.5	9.0
No. 2	307x409	20.50	12.5	12.3	12.5	12.0	12.8	12.5	11.5
No. 2-1/2	401x411	29.75	19.5	19.0	19.0	18.5	19.0	18.5	18.3
No. 2-1/2 jar	-----	29.54	19.3	18.8	18.8	18.3	18.8	18.3	18.0
No. 10	603x700	109.45	67.0	66.0	67.0	66.0	70.0	68.0	64.0

1/ The left figure represents the diameter of the container and the right figure the height. The first digit in each number represents whole inches and the second two digits represents fractions in sixteenths of an inch. Thus 303 is three and three-sixteenth inches.

2/ Avoirdupois oz. figures for glass containers were based on overflow capacity in fluid ounces, measured from the top of the container, see 21CFR 130.12. Exact capacities may vary with mold style.

3/ Mixed sizes of whole or sliced to be based on drained weight for predominant size of individual units.

Table IA, Recommended Minimum Drained Weights for Canned Beets, Metric System (Système International)

Container size or designation	Container Dimensions Diameter x Height(mm)	Water Capacity @20°C (grams)	Style ¹						
			Whole		Sliced		Diced	Quartered & cut	Julienne
			Size No. 1-3 inclusive	Size No. 4-6 inclusive	Small	Medium and large			
8-ounce tall	68.3x82.6	245.2	155.9	141.8	155.9	141.8	155.9	155.9	148.8
8-ounce jar	-----	241.8	155.9	141.8	155.9	141.8	155.9	155.9	148.8
No.1 picnic	68.3x101.7	309.0	191.4	184.3	191.4	184.3	198.5	198.5	191.4
No. 300	76.2x112.7	430.9	255.7	243.0	262.2	249.5	268.5	268.5	230.2
No. 303	81.0x111.1	477.7	283.5	269.3	290.6	276.4	297.7	297.7	255.2
No. 303 jar	-----	500.4	283.5	269.3	290.6	276.4	297.7	297.7	255.2
No. 2	87.3x115.9	581.2	354.4	347.3	354.4	340.2	361.5	354.4	326.0
No. 2-1/2	103.2x119.1	843.4	552.8	538.7	538.7	524.5	538.7	524.5	517.4
No. 2-1/2 jar	-----	837.45	545.7	531.6	531.6	517.4	531.6	517.4	510.3
No. 10	157.2x177.8	3102.9	1899.5	1871.1	1899.5	1871.1	1984.5	1927.8	1814.4

1/ Mixed sizes in whole or sliced styles to be based on drained weight for predominant size of individual units.

§52.526 Sizes of beets in whole beets.

The size of any beet is determined by measuring the smallest diameter through the center transverse to the longitudinal axis of the beet. The word and number designations of the various sizes of beets in whole beets are shown in Table No. II of this section. Such table also specifies the count range per container for stated container sizes.

Table No. II
Sizes of Beets in Whole Beets

Word designation	Number designation	Count Range Per Container						
		8-ounce Tall	No. 1 Picnic	No.300	No. 303 can No. 303 jar	No. 2 can	No. 2-1/2 can No. 2-1/2 jar	No. 10 can
Tiny	Size 1	20 and over.	25 and over.	31 and over.	35 and over.	44 and over.	70 and over.	250 and over
	Size 2	14 to/not including 20.	18 to/not including 25.	22 to/not including 31.	25 to/not including 35.	31 to/not including 44.	50 to/not including 70.	175 to/not including 250.
Small	Size 3	10 to/not including 14.	12 to/not including 18.	16 to/ not including 22.	18 to/not including 25.	22 to/not including 31.	35 to/not including 50.	125 to/not including 175.
	Size 4	5 to/not including 10.	8 to/not including 12.	9 to/not including 16.	10 to/not including 18.	13 to/not including 22.	20 to/not including 35.	75 to/not including 125.
Medium	Size 5	5 to/not including 8.	6 to/not including 9.	7 to/not including 10.	9 to/not including 13.	15 to/not including 20.	50 to/not including 75.
	Size 6	Less than 5.	Less than 6.	Less than 7.	Less than 9.	Less than 15.	Less than 50.
Assorted sizes 1/
Mixed sizes 2 /

1/ Assorted sizes is a combination of any 2 adjacent sizes.

2/ Mixed sizes is a combination of more than 2 adjacent sizes.

§52.527 Sizes of beet slices in sliced beets.

The size of any slice in sliced beets is determined by measuring the smallest diameter of the largest surface of the slice. The word designation of the various sizes of slices in sliced beets is shown in Table No. III of this section.

Table No. III
Sizes of Slices in Sliced Beets

Word designation	Smallest diameter in inches.
Small	Less than 2 inches.
Medium	From 2 inches up to but not including 2-1/2 inches.
Large	Not less than 2-1/2 inches.
Assorted sizes. 1/	
Mixed sizes. 2/	

1/ Assorted sizes is a combination of any 2 adjacent sizes.

2/ Mixed sizes is a combination of more than 2 adjacent sizes.

§52.528 Ascertaining the grade.

- (a) The grade of canned beets may be ascertained by considering, in conjunction with the requirements of the respective grade, the respective ratings of the factors of color, uniformity of size and shape, absence of defects, and texture.
- (b) The relative importance of each factor which is scored is expressed numerically on the scale of 100. The maximum number of points that may be given each such factor is:

Factors	Points
Color	25
Uniformity of size and shape	15
Absence of Defects	30
Texture	<u>30</u>
Total Score	100

- (c) **Normal flavor and normal odor** means that the canned beets are free from objectionable flavors and objectionable odors of any kind.

§52.529 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for each factor and expressed numerically. The numerical range within each factor which is scored is inclusive (for example, **12 to 15 points** means 12, 13, 14, or 15 points).

§52.530 Color.

- (a) **"A" classification.** Canned beets that possess a good color may be given a score of 21 to 25 points. **Good color** means that the canned beets possess a color that is uniform, bright, and typical of canned beets produced from beets of similar varietal characteristics.
- (b) **"C" classification.** If the canned beets possess a fairly good color, a score of 18 to 20 points may be given. Canned beets that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly good color** means that the canned beets possess a color that is typical of canned beets produced from beets of similar varietal characteristics and such color may be variable or slightly dull.
- (c) **"SStd" classification.** Canned beets that fail to meet the requirements of paragraph (b) of this section may be given a score of 0 to 17 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.531 Uniformity of size and shape.

- (a) **"A" classification.** Canned beets that are practically uniform in size and shape may be given a score of 12 to 15 points. **Practically uniform in size and shape** has the following meanings with respect to the various styles of canned beets:
 - (1) **Whole beets.** The size of the individual beet is not more than 2-1/4 inches in diameter, measured as aforesaid; the beets may vary moderately in shape, and the diameter of the largest beet does not exceed the diameter of the smallest beet by more than 50 percent of the diameter of the smallest beet.
 - (2) **Quartered beets.** The beets from which the quarters have been prepared were of a size not more than 2-1/2 inches in diameter, measured as aforesaid, and the weight of the largest quarter does not exceed the weight of the smallest quarter by more than 50 percent of the weight of the smallest quarter.
 - (3) **Sliced beets.** The individual slice is not more than 5/16 inch in thickness when measured at the thickest portion; the size of each slice is not more than 3-1/2 inches in diameter, measured as aforesaid, and the diameter of the largest slice does not exceed the diameter of the smallest slice by more than 50 percent of the diameter of the smallest

slice.

- (4) **Diced beets.** The units are practically uniform in size and shape with edges measuring not more than $\frac{3}{8}$ inch; and the aggregate weight of the units which are smaller than one-half of a cube and of all large and irregular units does not exceed 15 percent of the weight of all units.
 - (5) **Julienne, French style, or shoestring.** The strips of beets are practically uniform in size and shape, with cross sections measuring not more than $\frac{3}{16}$ inch, and the aggregate weight of all strips less than 1-1/2 inches in length does not exceed 25 percent of the weight of all the strips.
 - (6) **Cut.** The individual units weigh not less than $\frac{1}{4}$ ounce nor more than 2 ounces each and the largest unit weighs not more than four times the weight of the smallest unit. An occasional unit which is not representative of the general size of all units is excluded in determining size variation.
- (b) **"C" classification.** If the canned beets are fairly uniform in size and shape, a score of 8 to 11 points may be given. **Fairly uniform in size and shape** has the following meanings with respect to the various styles of canned beets:
- (1) **Whole beets.** The size of the individual beet is not more than 2-1/2 inches in diameter, measured as aforesaid; the beets may vary considerably in shape, and the diameter of the largest beet is not more than twice the diameter of the smallest beet.
 - (2) **Quartered beets.** The beets from which the quarters have been cut were of a size not more than 3-1/2 inches in diameter, measured as aforesaid, and the weight of the largest quarter is not more than twice the weight of the smallest quarter.
 - (3) **Sliced beets.** The individual slice is not more than $\frac{3}{8}$ inch in thickness when measured at the thickest portion; the size of each slice is not more than 3-1/2 inches in diameter, measured as aforesaid; and the diameter of the largest slice is not more than twice the diameter of the smallest slice.
 - (4) **Diced beets.** The units are fairly uniform in size and shape, with edges measuring not more than $\frac{1}{2}$ inch; and the aggregate weight of all units which are smaller than one-half of a cube and all large and irregular units does not exceed 25 percent of the weight of all units.

- (5) **Julienne, French style, or shoestring.** The strips of beets are fairly uniform in size shape, with cross sections measuring not more than 3/16 inch and the aggregate weight of all strips less than 1-1/2 inches in length does not exceed 40 percent of the weight of all the strips.
- (6) **Cut.** The individual units weigh not less than 1/8 ounce nor more than 3 ounces each and the largest unit weighs not more than twelve times the weight of the smallest unit. An occasional unit which is not representative of the general size of all the units is excluded in determining size variation.
- (c) **"SStd" classification.** Canned beets that fail to meet the requirements of paragraph (b) of this section may be given a score of 0 to 7 points and shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule).

§52.532 Absence of defects.

- (a) **General.** The factor of absence of defects refers to the degree of freedom from defective units. Defective units are slabs, units damaged by mechanical injury, units blemished by brown or black internal or external discoloration, pathological injury or insect injury and units blemished by other means.
 - (1) **Slab** means any portion of a whole beet obtained in slicing that possesses only one cut surface or cut surfaces of unequal areas varying in diameter more than 1/2 inch.
 - (2) **Damaged by mechanical injury** means crushed, broken, or cracked units, units with excessively frayed edges and surfaces, units with unpeeled areas, excessively trimmed units, or damaged by other means.
 - (3) **Blemished** means any blemish affecting an aggregate area greater than the area of a circle 3/16 inch in diameter or any blemish which seriously affects the appearance or eating quality of the unit.
- (b) **"A" classification.** Canned beets that are practically free from defects may be given a score of 26 to 30 points. **Practically free from defects** has the following meanings with respect to the various styles of canned beets:
 - (1) **Whole beets.** The aggregate weight of all defective units does not exceed 15 percent of the weight of all the units, and of such 15 percent not more than one-half thereof or one beet whichever weighs more, may consist of blemished units.

- (2) **Sliced, quartered, and cut beets.** The aggregate weight of all blemished units and units damaged by mechanical injury does not exceed 15 percent of the weight of all the units, and of such 15 percent not more than one-half thereof or one slice, quarter or cut, whichever weighs more, may consist of blemished units, and with respect to sliced beets not more than 10 percent of the weight of all the units may consist of units that are slabs.
 - (3) **Diced, Julienne, French style, or shoestring beets.** The aggregate weight of all defective units does not exceed 10 percent of the weight of all the units, and of such 10 percent not more than one-half thereof may consist of blemished units.
- (c) **"C" classification.** Canned beets that are fairly free from defects may be given a score of 22 to 25 points. Canned beets that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly free from defects** has the following meanings with respect to the various styles of canned beets:
 - (1) **Whole beets.** The aggregate weight of all defective units does not exceed 30 percent of the weight of all the units, and of such 30 percent not more than one-half may consist of blemished units.
 - (2) **Sliced, quartered, and cut beets.** The aggregate weight of all blemished units and units damaged by mechanical injury does not exceed 30 percent of the weight of all the units, and of such 30 percent not more than one-half thereof may consist of blemished units, and with respect to sliced beets not more than 25 percent of the weight of all the units may consist of units that are slabs.
 - (3) **Diced, julienne, french style, or shoestring beets.** The aggregate weight of all defective units does not exceed 25 percent of the weight of all the units, and of such 25 percent not more than one-half thereof may consist of blemished units.
- (d) **"SStd" classification.** Canned beets that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 21 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.533 Texture.

The factor of texture refers to the tenderness of the beets, and the degree of freedom from stringy or coarse fibers.

- (a) **"A" classification.** Canned beets that possess a tender texture may be given a score of 26 to 30 points. **Tender texture** means that the beets are tender, not fibrous, and possess a uniform character.
- (b) **"C" classification.** If the canned beets possess a fairly tender texture, a score of 22 to 25 points may be given. Canned beets that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly tender texture** means that the beets are fairly tender, may be variable in character but not tough or hard, and may possess a few stringy or coarse fibers.
- (c) **"SStd" classification.** Canned beets that fail to meet the requirements of paragraph (b) of this section may be given a score of 0 to 21 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.534 Ascertaining the grade of a lot.

The grade of a lot of canned beets covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products (7 CFR 52.1 through 52.83).

§52.535 Score sheet for canned beets.

Container size			
Container code or marking			
Label			
Net weight (ounces)			
Vacuum (inches)			
Drained weight (ounces)			
Style			
Size of whole beets (count)			
Size of sliced beets (diameter)			
Factors		Score Points	
Color	25	"A"	21-25
		"C"	18-20 <u>1/</u>
		"SStd"	0-17 <u>1/</u>
Uniformity of size and shape	15	"A"	12-15
		"C"	8-11 <u>1/</u>
		"SStd"	0-7 <u>1/</u>
Absence of defects	30	"A"	26-30
		"C"	22-25 <u>1/</u>
		"SStd"	0-21 <u>1/</u>
Texture	<u>30</u>	"A"	26-30
		"C"	22-25 <u>1/</u>
		"SStd"	0-21 <u>1/</u>
Total Score	100		
Normal flavor and odor			
Grade			

1/ Indicates limiting rule.

/s/ _____

Robert C. Keeney
Deputy Administrator
Fruit and Vegetable Programs